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Current Support Brief

AN INTERIM ANALYSIS OF TRUCK TRAFFIC PATTERNS IN CENTRAL AND SOUTHERN LAOS



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AN INTERIM ANALYSIS OF TRUCK TRAFFIC PATTERNS
IN CENTRAL AND SOUTHERN LAOS

Truck traffic on route 12,* a road used for the supply of Communist troops in central and southern Laos and South Vietnam, was greater than on any other road in the area from early March through mid-May 1964, according to an interim analysis of aerial photography and reports of road-watch teams. The amount of traffic on this route is comparable to that on route 7, the road that serves the Plaine des Jarres.** Although an analysis of the aerial photography on routes 101 and 110 in North Vietnam and route 12A-12A/B-12B (see Table 1) in Laos, which connect with route 12 to give access to the south, reveals much less traffic, reports from road-watch teams indicated infrequent but large convoys on route 12A-12A/B-12B. This consideration plus the fact that the truck traffic on route 12 is far in excess of the normal daily requirements of the Communist forces leads to the conclusion that supplies were being stockpiled in central and southern Laos during the period from early March through mid-May 1964. Stockpiling could have been undertaken for the following reasons: (1) to insure support for the forces during the rainy season, when it becomes difficult to move trucks over some of these roads; (2) to provide a supply capability for increased military activity by Communist forces in central and southern Laos; and (3) to increase support for the Viet Cong in South Vietnam.

1. Importance of Routes

Roads leading from North Vietnam to central and southern Laos are used to supply the estimated 11,200 Communist troops located in the provinces of Khammouane, Savannakhet, Saravane, and Attapeu and to supply materials for infiltration to the Viet Cong in South Vietnam. These Communist troops are estimated to require daily about 18 to 30 short tons, or 6 to 10 truckloads, of supplies. During the dry season (November through about April or May) the roads in these provinces have capacities far in excess of these supply requirements, but during the rainy season great difficulties are encountered

* See the map. A new route-numbering system for the roads in Laos that differs from the route numbers on the map is under consideration.

25X1

S-E-C-R-E-T

25X1

S-E-C-R-E-T

in moving supplies. There are no good connecting roads within Laos between the Communist-controlled territories of the central and southern provinces and the northern provinces served by route 7.

2. Route 12

Route 12 begins at Ha Tinh on route 1 in North Vietnam and extends south and west through Communist-held territory in Laos to the provincial capital of Thakhek in non-Communist territory. This road from Ha Tinh to its junction with route 12A in Laos is the beginning of the main supply route for about 6,800 Communist troops believed to be in the three southernmost provinces of Savannakhet, Saravane, and Attapeu. These troops require about four to six truckloads of supplies daily, but the capacity of route 12 is well in excess of these amounts. It is not necessary, therefore, for trucks to move over the road every day. In the dry season, large convoys of trucks can move over the road, with one such convoy carrying enough supplies to sustain military units dependent on the road for as long as 2 weeks.

An estimate of truck traffic on the section of route 12 from Ha Tinh to the junction with route 12A, based on the number of trucks observed in aerial photography during the period from early March through mid-May 1964, is higher than that for any other road in Laos, including route 7, which is the major supply line for the Plaine des Jarres area (see Table 1). However, the lower amount of traffic calculated from photography for route 7 probably is due largely to the small sample of traffic on this route during the period from

when the photographic flights covered an average of only 15 percent of the route per mission.* Estimated traffic during the first half of the period, was at about the same level on both route 7 and route 12, as shown in the following tabulation:

S-E-C-R-E-T

	<u>Period and Route</u>	<u>Average Photographic Coverage of Route (Percent)</u>	<u>Estimated Average Number of Trucks per Day</u>
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	Route 7	40	72
	Route 12	30	73
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	Route 7	15	56
	Route 12	45	83

If the times and distances for which there was photographic coverage can be regarded as representative, the truck traffic on route 12 is far in excess of the supply requirements for the southern provinces of Laos. The part of the road from Ha Tinh to route 12A had an estimated average of 76 trucks per day, moving and parked. As shown in the tabulation, traffic on this route was greater during the period from than during the earlier period and possibly was occasioned by the heavy stockpiling just before the rainy season, when it would be difficult to move trucks on route 12A and when the capacity of route 12 would be lower.

The bulk of the traffic on route 12 is believed to move down route 12A toward southern Laos, although some traffic sighted on route 12 in North Vietnam may not have continued on route 12A but may have moved down route 110 to route 1 or down route 101 (which roughly parallels route 1 south toward the Demarcation Line). Even though photography of the part of route 12 beyond the junction with route 12A has not shown much truck traffic, some trucks also must have moved along this route to supply three Pathet Lao military installations located near the junction of routes 12 and 8A.

3. Route 12A-12A/B-12B

Convoys that start their trip to southern Laos from Bai Due Thon probably move to the junction of routes 12 and 12A, where a rest and refueling stop is located. From there, most of the forward movement of trucks during the period from early March through mid-May 1964 almost certainly has been down route 12A, over 12A/B and along either 12A or 12B, to route 9. During the dry season this whole route has a fair capacity, but during the rainy season the route is believed to be

S-E-C-R-E-T

capable of sustaining very little traffic. Consequently, supplies must be stockpiled during the dry season so that they will be available for the troops served by this route during the rainy season.

Photographic coverage of the route was not sufficient, however, to reveal anything like the high level of traffic found on route 12. Even though a large number of missions were flown during the period, they covered only an average of 25 percent of the route, and only a total of 125 trucks were observed (see Table 2). Even if the route had received better photographic surveillance, heavy tree foliage could have concealed trucks. Road-watch teams reported that three large convoys of as many as 63 trucks each moved toward route 9 on different days during March and April. Convoys of equal size also were sighted returning north. None of these convoys was revealed by aerial photography.

Information from both photography and road-watch teams indicates that convoys do not move every day. An average movement of almost six trucks each way per day, however, as indicated in Table 1, should be considered a minimum during the period under review. This number is about equal to the requirements of troops located along route 9 and to the south in Laos. It is believed that the actual traffic is higher and, therefore, that stockpiles are being prepared probably for the rainy season and possibly also for increased military activity in Laos or to increase support for the Viet Cong in South Vietnam.

4. Routes 9 and 23

About one-half of the length of route 9, which is an all-weather road of good quality, is located in Communist-held territory and therefore can be used to carry supplies toward the South Vietnamese border or to mount a military force in the direction of Savannakhet. Trucks arriving on route 9 serve the barracks and supply area at Muong Phine, the Ban Thay storage area, and the Tchepone complex, which also is a barracks, supply, and storage area.

Photographic coverage of route 9 has been relatively extensive but has revealed very few trucks. A possible explanation of this fact is the probability that the trucks arrive on route 9 late in the day and leave early in the morning. Photographic surveillance of the route occurred for the most part between 10 a.m. and noon and never before 9 a.m. or after about 3 p.m. .

S-E-C-R-E-T

Route 23 extends south from route 9 at Muong Phine to Saravane. The Communist forces control only the northern part of the road and cannot use it for through traffic to supply forces in the Attapeu area. Although the road has the highest percent of photographic coverage of any road in southern Laos, only two trucks were sighted.

5. Routes 8 and 8A

25X1 Routes 8 and 8A are not directly associated with the movement of supplies for the Communist forces in the southernmost provinces of Laos. Route 8 extends from Vinh in North Vietnam to Lak Sao and Kam Keut in Laos and serves the estimated 4,400 troops located in Khammouane Province of central Laos. From two to four trucks per day are required to supply these troops. Photographic coverage of the road averaged only 30 percent and revealed very few trucks. Although no truck convoys were found, a road-watch team reported that a convoy of 100 trucks loaded with food and ammunition entered Laos on this route [] and left the same day. Traffic over route 8, therefore, may be higher than that indicated by photography.

Route 8A serves merely as a connection between routes 8 and 12 and is believed to be in poor condition. Although coverage of this road was relatively good, few trucks were sighted, indicating that there is little traffic moving between routes 8 and 12.

S-E-C-R-E-T

S-E-C-R-E-T

Table 1

Laos and North Vietnam: Estimated Number of Trucks and Truck Density
on Selected Routes a/*

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Route Number	Terminal Points	Length (Miles)	Total Number of Trucks Observed by Photography <u>b/</u>	Average Photographic Coverage of Route <u>c/</u> (Percent)	Estimated Number of Trucks if Entire Route were Covered <u>d/</u>	Estimated Average Number of Trucks per Day <u>e/</u>	Estimated Average Truck Density <u>f/</u>
7	Junction with route 1 at Phu Trung to the Plaine des Jarres	206	590	30	1,560	68	0.33
8	Vinh to Lak Sao	72	93	30	253	7	0.10
8A	Junction with route 8 at Lak Sao to junction with Route 12	52	17	60	28	1	0.02
12	Junction with route 1 at Ha Tinh to junction with Route 12A about 12 miles west of the Laos - North Vietnam border	78	1,004	40	2,205	76 <u>g/</u>	0.97
	Junction with route 12A to junction with route 8A	45	24	30	77	2	0.05

* Footnotes follow on p. 8.

S-E-C-R-E-T

S-E-C-R-E-T

Table 1

Laos and North Vietnam: Estimated Number of Trucks and Truck Density
on Selected Routes a/

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(Continued)

<u>Route Number</u>	<u>Terminal Points</u>	<u>Length (Miles)</u>	<u>Total Number of Trucks Observed by Photography b/</u>	<u>Average Photographic Coverage of Route c/ (Percent)</u>	<u>Estimated Number of Trucks if Entire Route were Covered d/</u>	<u>Estimated Average Number of Trucks per Day e/</u>	<u>Estimated Average Truck Density f/</u>
12A- 12A/B- 12B	Junction with route 12 about 12 miles west of the Laos - North Vietnam border to junction with route 9 west of Muong Phine	103	125	25	456	11	0.11
9	Laos - South Vietnam border to Muong Phine	47	51	55	76	2	0.03
23	Junction with route 9 at Muong Phine to Saravane	111	2	65	3	Negl.	Negl.
1	Vinh to the Demarca- tion Line	202	782	45	1,391	43	0.22

S-E-C-R-E-T

S-E-C-R-E-T

Table 1

Laos and North Vietnam: Estimated Number of Trucks and Truck Density
on Selected Routes a/

(Continued)

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- a. Based on traffic analysis survey reports [redacted] Data include vehicles reported as trailers and unidentified or possible vehicles but exclude automobiles, buses, and tanks.
- b. Possibly some duplication because of more than one mission flown on 1 day, although vehicles observed twice during one mission are omitted.
- c. A simple unweighted average of the percentage of the physical part of the route covered by all photographic missions for the period. No adjustment has been made for parts of the road obscured by clouds and trees or for the frequency of missions needed to reveal theoretically all traffic on a particular route. For example, on a long route, missions would not have to be flown every day to reveal a truck traversing the entire route, whereas on a short route missions would have to be flown more than once a day to reveal such a truck. If this factor were taken into consideration, the average percent of coverage would be reduced.
- d. Based on the assumption that the traffic pattern observed by photography was representative of the entire route and period. Duplication because of more than one mission flown on 1 day has been eliminated.
- e. Average number of trucks moving both ways per day on the route and parked.
- f. Average number of trucks per route mile both moving and parked, obtained by dividing the estimated average trucks per day by the length of the route. Estimates are based on unrounded data.
- g. If all parked trucks are eliminated from the total, the average number per day would be reduced to 26 per day. It is possible that some adjustment should be made for parked trucks if these data are to be used to estimate volume of movement, for some of the parked trucks probably have been photographed more than once by missions on consecutive days.

S-E-C-R-E-T

S-E-C-R-E-T

Table 2

Laos and North Vietnam: Photographic Coverage of Selected Routes
and Total Number of Trucks Observed a/*

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Route Number	Terminal Points	Length (Miles)	Total Number of Trucks Observed by Photography b/				Number of Days with Photographic Coverage
			Direction Headed		Parked c/	Total	
7	Junction with route 1 at Phu Trung to the Plaine des Jarres	206	South or West	North or East	295	590	23
8	Vinh to Lak Sao	72	31	35	27	93	35
8A	Junction with route 8 at Lak Sao to junction with route 12	52	3	2	12	17	35
12	Junction with route 1 at Ha Tinh to junction with route 12A about 12 miles west of the Laos - North Vietnam border	78	224	125	655	1,004	29
	Junction with route 12A to junction with route 8A	45	14	5	5	24	32

* Footnotes follow on p. 10.

S-E-C-R-E-T

S-E-C-R-E-T

Table 2

Laos and North Vietnam: Photographic Coverage of Selected Routes
and Total Number of Trucks Observed ^{a/}

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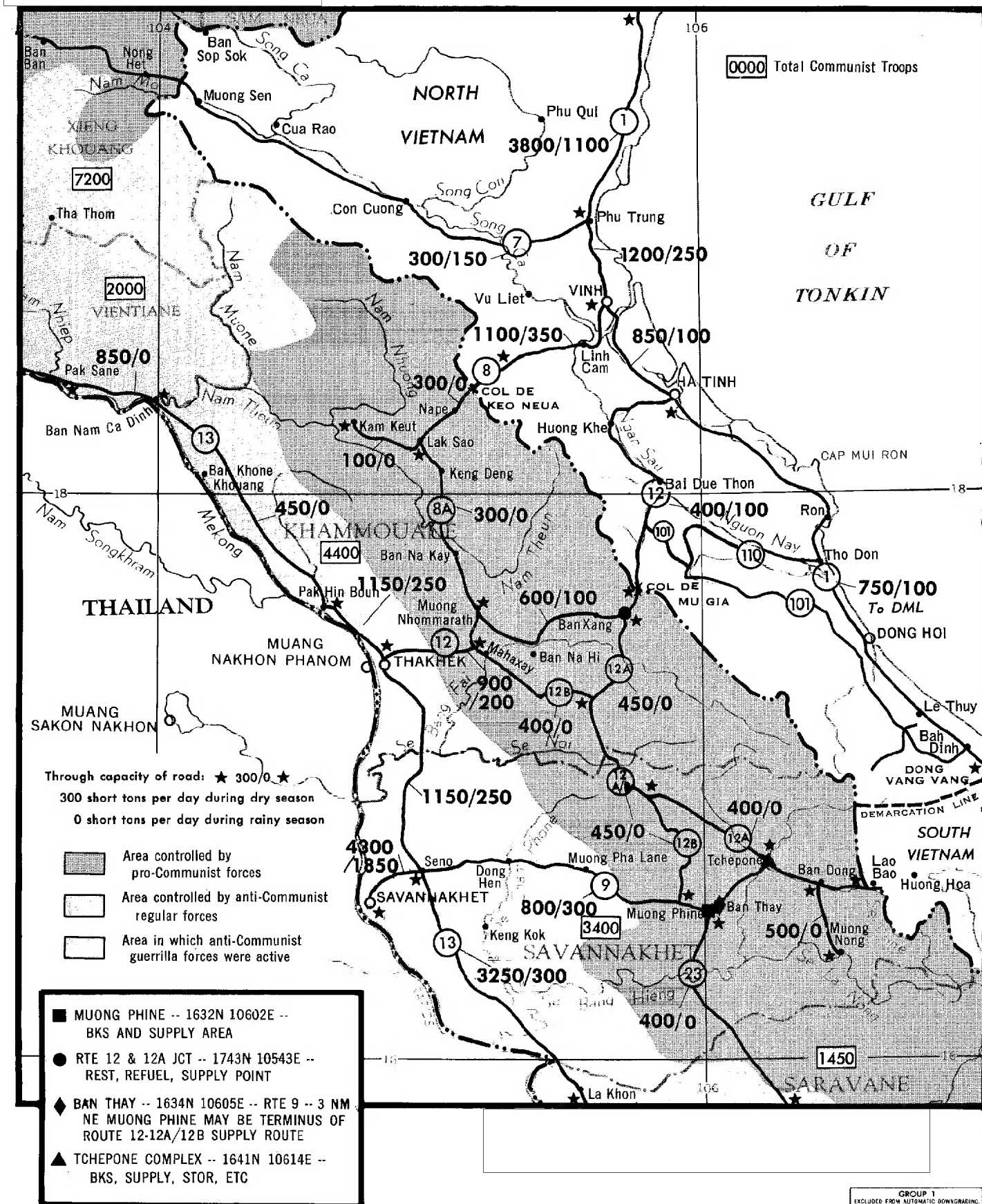
Route Number	Terminal Points	Length (Miles)	Total Number of Trucks Observed by Photography ^{b/}				Number of Days with Photographic Coverage
			Direction Headed		Parked ^{c/}	Total	
			South or West	North or East			
12A- 12A/B- 12B	Junction with route 12 about 12 miles west of the Laos - North Vietnam border to junction with route 9 west of Muong Phine	103	68	48	9	125	41
9	Laos - South Vietnam border to Muong Phine	47	26	14	11	51	47
23	Junction with route 9 at Muong Phine to Saravane	111	2	0	0	2	49
1	Vinh to the Demarcation Line	202	244	273	265	782	32

- a. Based on traffic analysis survey reports [] Data include vehicles reported as trailers and unidentified or possible vehicles but exclude automobiles, buses, and tanks.
- b. Possibly including some duplication because of more than one mission flown on 1 day, although vehicles observed twice during one mission are omitted.
- c. Including trucks headed in an undetermined direction.

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Laos: ROAD CAPACITIES



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